USER MANUAL

Solar Road Light

Item: R06-2

1. Preface:

We have designed and adopted the most reliable, cost effective and efficient components in the market, to develop a durable, energy smart and practical street lighting system.

Our product is a lighting system which uses solar energy as its power source; It is a stable and proven technology that needs no underground cabling, it is easy to install, works with save low-voltage, it requires low maintenance, and has a long life expectancy.

It is a relatively new technology that is quickly spreading to all parts of the world, specially in road lighting, scenery lighting, residential lighting, farms, and on/off-grid projects.

2.Functions and components

1)WAR smart controller

The controller for the main form of batteries to store power solar lighting field, from the dedicated micro-controller chips, electronic components, such as switching power control components, the controller automatically detect battery voltage control flow battery recharging and overvoltage and undervoltage protection at work to prevent the battery, greatly extended the battery life. Automatic darkness lit lamps, automatically extinguished when the dawn (delay of 30 seconds), intelligent control, a night of anti-lightning worries stem function.

2)Solar components

The solar components are the core to the solar power system. It adopts imported solar cells and produced by advanced equipment, it can turn the solar energy into electricity and then stored in the battery through the controller.

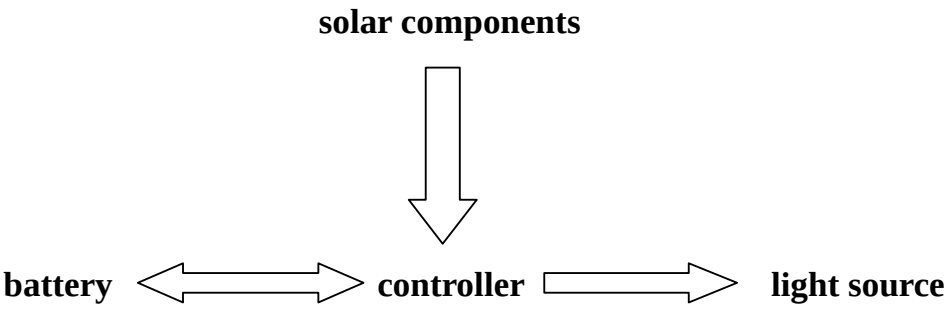
3)Battery

The maintenance-free gel battery is featured by environmentally friendly, stable in operation and reliable.

4)Light source

Adopts high power super bright LED as light source, it is featured by long lifespan, energy efficient, maintenance free and boast a lifespan of above 50,000hours.

3. System working principle



4. System configuration

1)solar components ： 100W/17.5V*2pcs

2)light source： 60Watt LED lamp

3)battery： 12V/100AH*2pcs

4)controller： A23(6 hours full lighting+ 5hours half lighting)

5)pole： 8 metre

5. Installation

See instructions attached

6. Malfunctions and solutions

Malfunctions	Reasons	Detecting methods	Solution
Do not light	Battery Insufficient voltage	Switch a digital multimeter to voltage section, connect the anode with the anode of the battery, the cathode with the cathode the battery ; if voltage display less than 12 Volt,that means negative voltage,the light does not light.	Connect the solar panel with the controller to the correct position, anode with anode, cathode with cathode. And use the solar system to charge the battery(The best is :only connect the panel with the battery, after the battery is full charge, then connect the light.)
	Controller has no output	①Check if the fuse is burnt ②Switch a digital multimeter to voltage section, connect the anodes and cathodes of the multimeter and the light source respectively，if no output,that means the controller is damaged.	①Replace the fuse ②Replace the controller
Lighting flash	Malfunction of controller		Replace controller

7. Contact

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Or its authorized dealer for the Caribbean, North, Central and South America

Http://www.saeg.com E-mail:miami@saeg.com

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Attachment 1: A23 solar light controller user manual

The controller is mainly adapted to the solar system to control the single or multiple output of the solar power supply. It's composed of dedicated micro-controller chips, electronic components, switching power control components. It protects the battery from overcharging and over discharging and ensures the whole system has continuous stability.

Technical Parameters:

Standard voltage: DC12V

Input voltage: DC10-15V

Output voltage: DC10-15V

Discharge voltage: 10.8V ±0.1%

Overcharge voltage: 14.5V ±0.1%

Output maximum load current: 10A

Input charge max current: 10A

Suitable temperature: -10□— +60□

Notice:

1. Controller will automatically shut down output load voltage when battery voltage is below DC10.8V, as soon as the battery returns to normal rechargeable voltage, the controller works again.

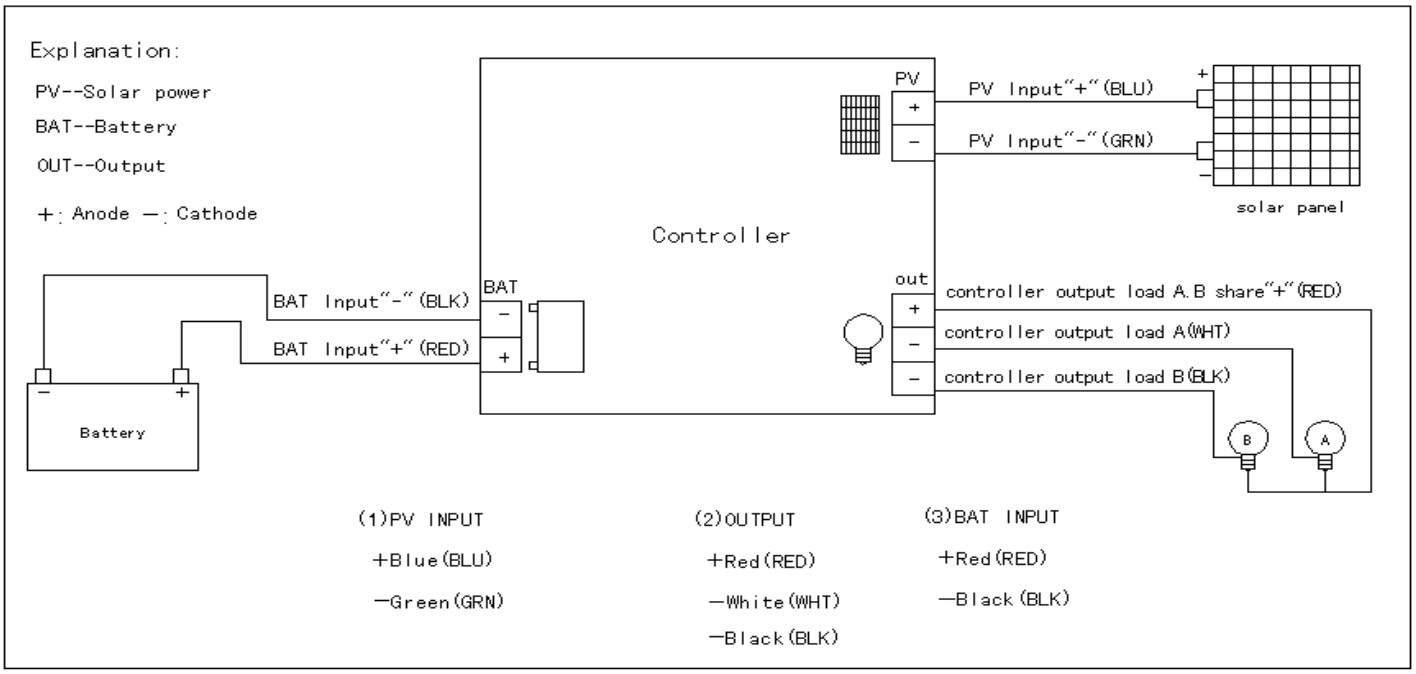
2. Connect the battery input, panel input and output terminal to the controller correctly, especially the positive and negative electrode. Avoid installing in wet places.

3. Replace the insurance pipe with the same type.

4. Install under professional guidance.

5. Pull out the fuse during installation, after checking the circuit, inserts the fuse.

Controller Wire Diagram:



Attachment 2: **MS series solar energy LED Street light troubleshooting**

The LED Street light is divided as five groups of LEDs. Each group of LEDs is powered by one high efficiency DC/DC constant current LED driver. Each one should be separated as individual, in case one of the drivers get damaged, you may replace the damaged driver as normal one to maintain the function.

The driver's parameters are as follow:

1. Input voltage: DC10V-DC15V

2. Operating current: 3.5A

3. Output voltage: DC24-DC30V

4. Output current: 0.33A

5. Input wiring: The red wire is the DC positive terminal, the black wire is the DC negative terminal, please do not invert the polarity, otherwise it will damage or burn out the driver electronic components.

Troubleshooting:

1. If the lamp does not work, please check the following instruction:

1.1. The LED street light power source input terminals does not connect to the DC10V-DC15V power source or the cables had been cut in some section.

Solution:

Please connect the power source to the lamp's terminals with the right polarity or consult the qualified specialist.

1.2. The LED street light power source input terminals are connected with the wrong polarity, which might damage all LED drivers or damage the controller's protective tube severely.

Solution:

Please disconnect the power source, reconnect the cables with the right polarity and after replacing the controller's protective tube, electrify and test again. If the LED lamp does not work, is highly probable that the drivers have been damaged due to a inverted current, in such case, replace all the five drivers and test the system again.

2. One (more than one) group of LEDs dose not work, but the others remain unchanged.

Check the cable connections. If the cable is normal, please replace a new driver of this group and test again.

3. The LED street light twinkles. This might be caused by an improper wire size, which can cause the power source to be overdriven and result in malfunction. Please replace the correct size cable for one multi-core pure copper electric cable with 2.5m ㎡ diameter or more to ensure the right current transmission.

Attachment 3: Water-proof treatment of battery electrodes

When connecting the positive or negative electrode, sheathe the wire with a hose(the size of the hose should cover the length of bolts and electrode).Fix the wire to the electrode by the bolt, then bandage

the electrode with some medical gauze, and cover the electrode with the hose, put the allocated water-proof resin into the hose, finished. (Please refer to the ratio by the supplier of resin when allocating)

Remarks: generally, the water-proof resin will reach its best effect in 12 hours after being used.

Attachment 4: Installation drawing

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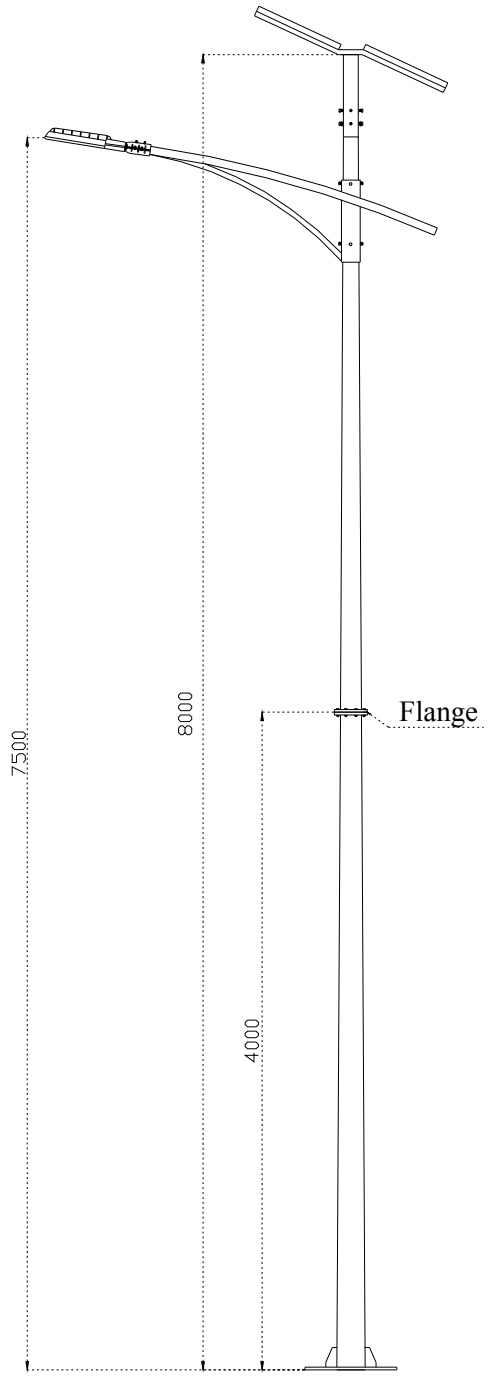
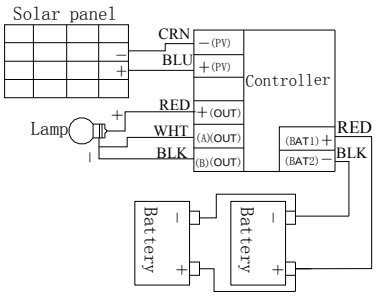




Item	R05 solar street light

1 Product intro

This product is a lighting system which adopts solar components, and turns solar energy into electricity; it is stable and reliable when working, so it does not need underground cabl. It is easy to install, low-voltage and low maintenance fee. Therefore it is widely used in road lighting, scenery lighting, residential lighting and on/off-grid projects.

2 Functions

The solar road light adopts a controller which is made up of microchips and electrical switch pipe. The controler provides the proper charging voltage and current to the battery, avoiding over-charging or over-discharging it; therefore, the battery is well protected and the lifespan is prolonged. The system switches the light on in low ambient light or night, and switches the light off when it is day automatically.

3 Module

1.	Solar panel (100W)	2pcs
2.	Solar panel bracket	1pc
3.	Solar panel bracket sleeve	1pc
4.	LED lamp(WAR-MS-60W)	1pc
5.	Lamp bracket	1pc
6.	Pole (cables、controller)	1set
7.	Battery (12V100AH)	2pcs

4 Installation

1) Preparation: dig a hole for the base (1M*1M1-*1.5M), put the iron cage into the hole at a position that the screw part is 80MM above the level (see picture R). Put in cement; when it is dry and firm, install.

2) Put the light arm on the pole, insert the wire and screw the bolts. Fasten the light on the arm and adjust the lighting direction, see picture A.

3) Fasten the solar components on the holder and the casing, and turn the solar panel right to the south; connect the solar components with the matched wires, see picture B.

4) Put the battery into the battery box in the base of the pole, and set up the road light vertically on the base; adjust the direction and screw the bolts.

5) Installation in the electric box: see A23 controller circuit diagram. Open the box, check the wiring of the controller, the solar panels, the light and see if they are connected well according to the circuit diagram. After confirmation, connect the battery wire and install the fuse if the wiring is OK. Then the light is on. Connect the blue wire with the matched port, the light will automatically go off in 30 seconds. Lock the box and the installation will be complete.

5 Note:

1) Before installation, the user should have prepared the base and relevant things.

2) The product should be installed at a place without high buildings or tall trees that can hide the sunshine and prevent air ventilation.

3) Before its initial usage, the solar product should be charged to a fixed level.

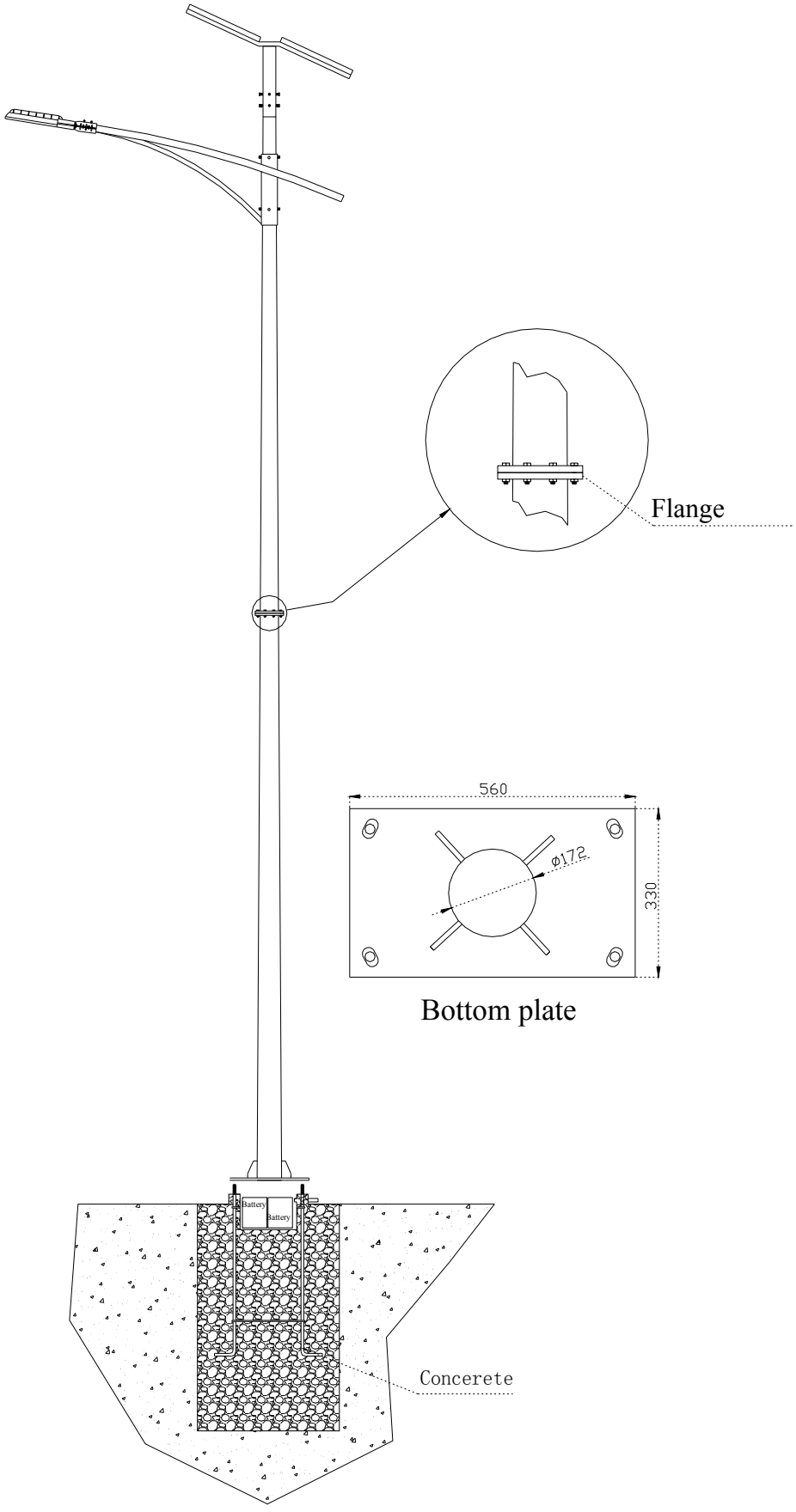
4) Better install under instruction and supervision of professionals.

5) The solar panels should be handled with care.

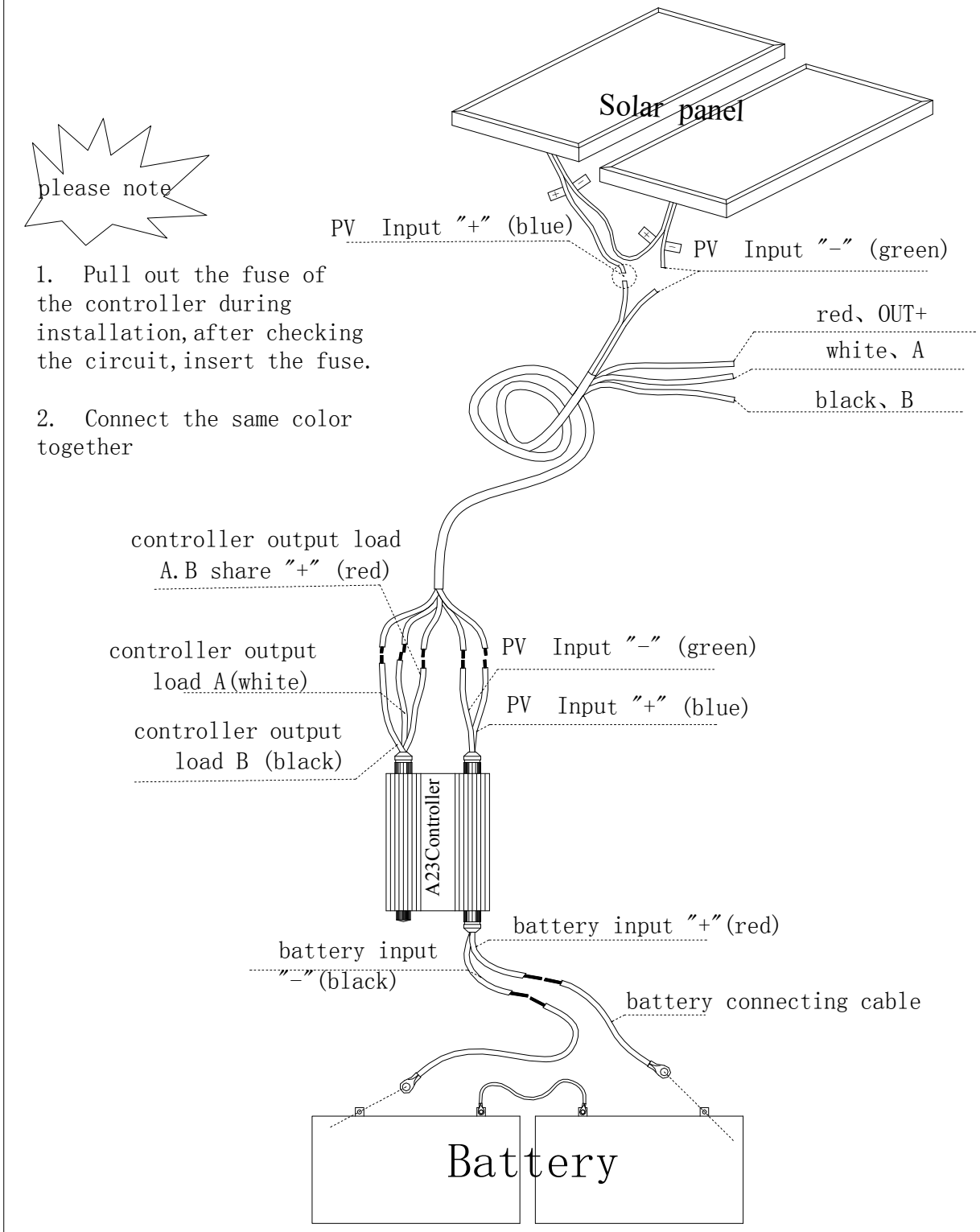
6) Endure temperature: -25 centidegree to +50 centidegree, anti-wind capacity 60km/h;

7) Special care to the correct wiring on polarity.

General chart

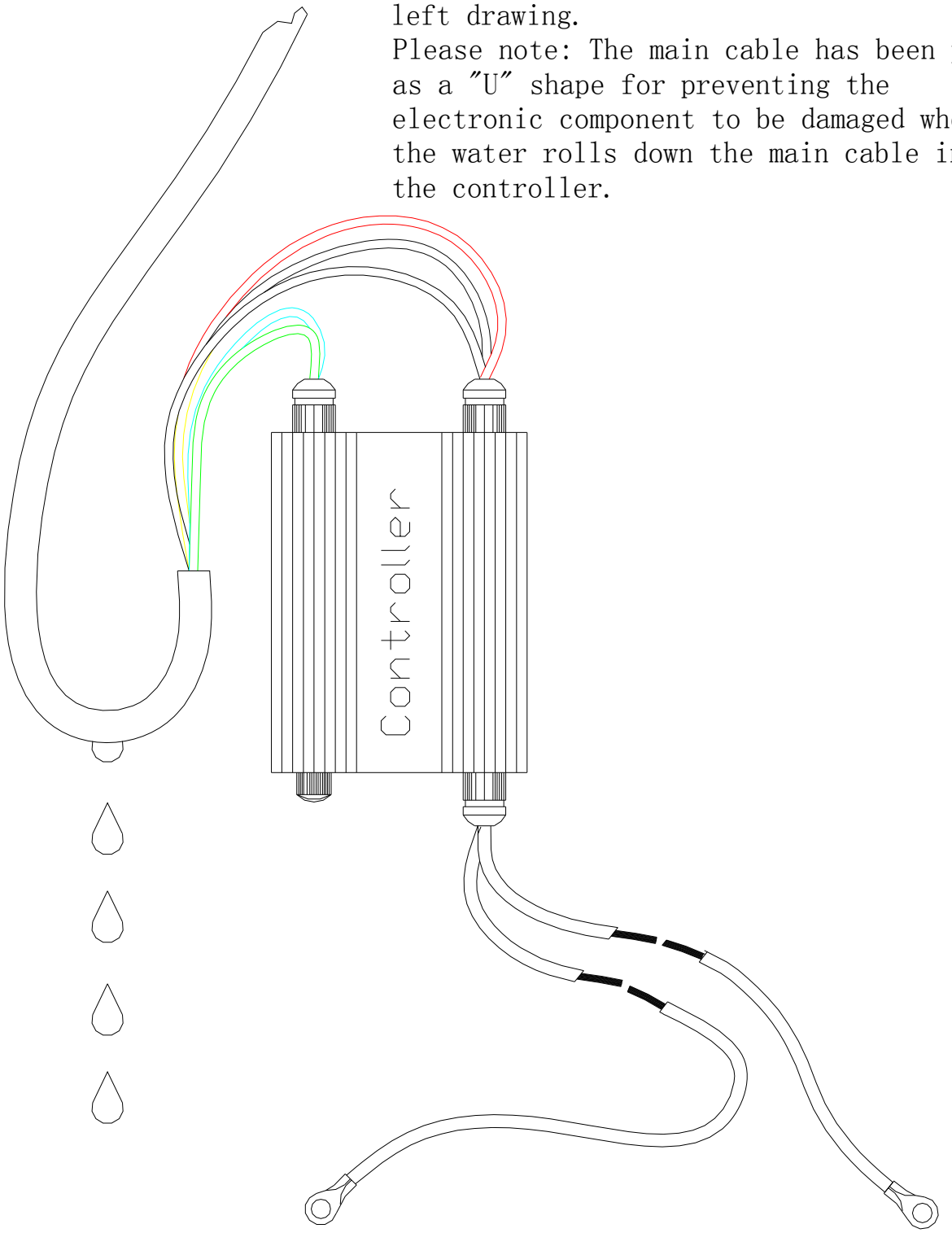


Solar system circuit diagram



A23 Controller place diagram

Place the controller as shown on the left drawing.
Please note: The main cable has been put as a "U" shape for preventing the electronic component to be damaged when the water rolls down the main cable into the controller.



Driver replacing

Install following the order